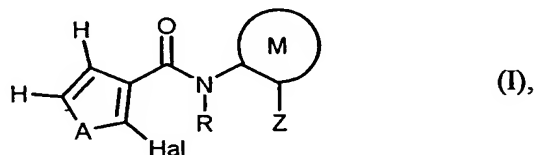


Patent Claims

1. 2-Halofuryl/thienyl-3-carboxamides of the formula (I)



5 in which

A represents O (oxygen) or S (sulphur),

Hal represents halogen,

10 R represents hydrogen, C₁-C₈-alkyl, C₁-C₆-alkylsulphinyl, C₁-C₆-alkylsulphonyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-cycloalkyl; C₁-C₆-haloalkyl, C₁-C₄-haloalkylthio, C₁-C₄-haloalkylsulphinyl, C₁-C₄-haloalkylsulphonyl, halo-C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C₁-C₃-alkyl, (C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, (C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl; halo-(C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, halo-(C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms;

15 (C₁-C₈-alkyl)carbonyl, (C₁-C₈-alkoxy)carbonyl, (C₁-C₄-alkoxy-C₁-C₄-alkyl)carbonyl, (C₃-C₈-cycloalkyl)carbonyl; (C₁-C₆-haloalkyl)carbonyl, (C₁-C₆-haloalkoxy)carbonyl, (halo-C₁-C₄-alkoxy-C₁-C₄-alkyl)carbonyl, (C₃-C₈-halocycloalkyl)carbonyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; or -C(=O)C(=O)R¹, -CONR²R³ or -CH₂NR⁴R⁵,

20 R¹ represents hydrogen, C₁-C₈-alkyl, C₁-C₈-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-cycloalkyl; C₁-C₆-haloalkyl, C₁-C₆-haloalkoxy, halo-C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

25 R² and R³ independently of one another each represent hydrogen, C₁-C₈-alkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-cycloalkyl; C₁-C₈-haloalkyl, halo-C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

30 R² and R³ furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C₁-C₄-alkyl, where the heterocycle may contain one or two further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR⁶,

R^4 and R^5 independently of one another represent hydrogen, C_1 - C_8 -alkyl, C_3 - C_8 -cycloalkyl; C_1 - C_8 -haloalkyl, C_3 - C_8 -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^4 and R^5 furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1 - C_4 -alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR^6 ,

R^6 represents hydrogen or C_1 - C_6 -alkyl,

M represents a phenyl, thiophene, pyridine, pyrimidine, pyridazine or pyrazine ring, each of which is monosubstituted by R^7 , or represents a thiazole ring substituted by R^{7-A} ,

R^7 represents hydrogen, fluorine, chlorine, methyl, isopropyl, methylthio or trifluoromethyl,

R^{7-A} represents hydrogen, methyl, methylthio or trifluoromethyl,

Z represents Z^1 , Z^2 , Z^3 or Z^4 , in which

Z^1 represents phenyl which is optionally mono- to pentasubstituted by identical or different substituents,

Z^2 represents bicycloalkyl or cycloalkyl which is optionally mono- or polysubstituted by identical or different substituents,

Z^3 represents unsubstituted C_2 - C_{20} -alkyl or represents C_1 - C_{20} -alkyl which is mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1 - C_4 -alkyl,

Z^4 represents C_2 - C_{20} -alkenyl or C_2 - C_{20} -alkynyl, each of which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halo-dialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1 - C_4 -alkyl,

R^8 and R^9 independently of one another represent hydrogen, C_1 - C_8 -alkyl, C_1 - C_8 -alkoxy, C_1 - C_4 -alkoxy- C_1 - C_4 -alkyl, C_1 - C_4 -alkylthio- C_1 - C_4 -alkyl or C_1 - C_6 -haloalkyl,

R¹⁰ represents hydrogen, C₁-C₈-alkyl, C₁-C₈-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkylthio-C₁-C₄-alkyl, C₂-C₈-alkenyl, C₂-C₈-alkynyl, C₁-C₆-haloalkyl, C₂-C₆-haloalkenyl, C₂-C₆-haloalkynyl, C₃-C₆-cycloalkyl, or represents in each case optionally substituted phenyl or phenylalkyl,

5 or

M and Z together represent 1H-2,3-dihydroinden-4-yl, 1,3-dihydro-2-benzofuran-4-yl or 1,3-dihydro-2-benzothien-4-yl, each of which is optionally mono- to trisubstituted by methyl.

10 2. 2-Halofuryl/thienyl-3-carboxamides of the formula (I) according to Claim 1 in which

A represents O (oxygen) or S (sulphur),

Hal represents fluorine, chlorine, bromine or iodine,

15 R represents hydrogen, C₁-C₆-alkyl, C₁-C₄-alkylsulphinyl, C₁-C₄-alkylsulphonyl, C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₆-cycloalkyl; C₁-C₄-haloalkyl, C₁-C₄-haloalkylthio, C₁-C₄-haloalkylsulphinyl, C₁-C₄-haloalkylsulphonyl, halo-C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine-and/or bromine atoms; formyl, formyl-C₁-C₃-alkyl, (C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, (C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl; halo-(C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, halo-(C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl having in each case 1 to 13 fluorine, chlorine-and/or bromine atoms;

20 (C₁-C₆-alkyl)carbonyl, (C₁-C₄-alkoxy)carbonyl, (C₁-C₃-alkoxy-C₁-C₃-alkyl)carbonyl, (C₃-C₆-cycloalkyl)carbonyl; (C₁-C₄-haloalkyl)carbonyl, (C₁-C₄-haloalkoxy)carbonyl, (halo-C₁-C₃-alkoxy-C₁-C₃-alkyl)carbonyl, (C₃-C₆-halocycloalkyl)carbonyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms, or -C(=O)C(=O)R¹, -CONR²R³ or -CH₂NR⁴R⁵,

25 R¹ represents hydrogen, C₁-C₆-alkyl, C₁-C₄-alkoxy, C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₆-cycloalkyl; C₁-C₄-haloalkyl, C₁-C₄-haloalkoxy, halo-C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₆-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

30 R² and R³ independently of one another each represent hydrogen, C₁-C₆-alkyl, C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₆-cycloalkyl; C₁-C₄-haloalkyl, halo-C₁-C₃-alkoxy-C₁-C₃-alkyl, C₃-C₆-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

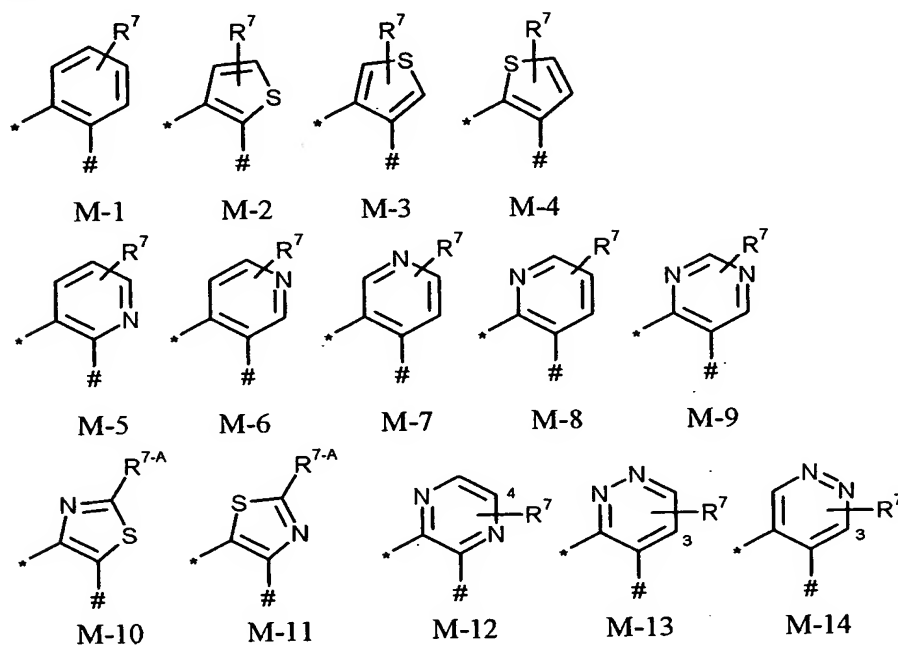
35 R² and R³ furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 or 6 ring atoms which is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of halogen and C₁-C₄-alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR⁶,

R^4 and R^5 independently of one another represent hydrogen, C_1 - C_6 -alkyl, C_3 - C_6 -cycloalkyl; C_1 - C_4 -haloalkyl, C_3 - C_6 -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^4 and R^5 furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 or 6 ring atoms which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1 - C_4 -alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR^6 ,

R^6 represents hydrogen or C_1 - C_4 -alkyl,

M represents one of the cycles below,



where the bond marked "*" is attached to the amide and the bond marked "#" is attached to the radical Z,

R^7 represents hydrogen, fluorine, chlorine, methyl, isopropyl, methylthio or trifluoromethyl,

R^{7-A} represents hydrogen, methyl or trifluoromethyl,

Z represents Z^1 , Z^2 , Z^3 or Z^4 , where

Z^1 represents phenyl which is optionally mono- to pentasubstituted by identical or different substituents, the substituents in each case being selected from the list W^1 ,

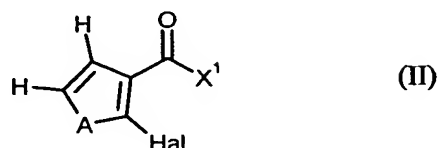
W^1 represents halogen, cyano, nitro, amino, hydroxyl, formyl, carboxy, carbamoyl, thio-carbamoyl;

- in each case straight-chain or branched alkyl, hydroxyalkyl, oxoalkyl, alkoxy, alkoxyalkyl, alkylthioalkyl, dialkoxyalkyl, alkylthio, alkylsulphinyl or alkylsulphonyl having in each case 1 to 8 carbon atoms;
- in each case straight-chain or branched alkenyl or alkenyloxy having in each case 2 to 6 carbon atoms;
- in each case straight-chain or branched haloalkyl, haloalkoxy, haloalkylthio, haloalkylsulphinyl or haloalkylsulphonyl having in each case 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms;
- in each case straight-chain or branched haloalkenyl or haloalkenyloxy having in each case 2 to 6 carbon atoms and 1 to 11 identical or different halogen atoms;
- in each case straight-chain or branched alkylamino, dialkylamino, alkylcarbonyl, alkylcarbonyloxy, alkoxycarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, arylalkylaminocarbonyl, dialkylaminocarbonyloxy having 1 to 6 carbon atoms in the respective hydrocarbon chains, alkenylcarbonyl or alkynylcarbonyl having 2 to 6 carbon atoms in the respective hydrocarbon chains;
- cycloalkyl or cycloalkyloxy having in each case 3 to 6 carbon atoms;
- doubly attached alkylene having 3 or 4 carbon atoms, oxyalkylene having 2 or 3 carbon atoms or dioxyalkylene having 1 or 2 carbon atoms, each of which is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of fluorine, chlorine, oxo, methyl, trifluoromethyl and ethyl;
- or the grouping $-C(Q^1)=N-Q^2$ in which
- Q^1 represents hydrogen, hydroxyl or alkyl having 1 to 4 carbon atoms, haloalkyl having 1 to 4 carbon atoms and 1 to 9 fluorine, chlorine and/or bromine atoms or cycloalkyl having 1 to 6 carbon atoms and
- Q^2 represents hydroxyl, amino, methylamino, phenyl, benzyl or represents in each case optionally cyano-, hydroxyl-, alkoxy-, alkylthio-, alkylamino-, dialkylamino- or phenyl-substituted alkyl or alkoxy having 1 to 4 carbon atoms, or represents alkenyloxy or alkynyloxy having in each case 2 to 4 carbon atoms,
- and also phenyl, phenoxy, phenylthio, benzoyl, benzoylthenyl, cinnamoyl, heterocyclyl or phenylalkyl, phenylalkyloxy, phenylalkylthio or heterocyclylalkyl having in each case 1 to 3 carbon atoms in the respective alkyl moieties, each of which radicals is optionally mono- to trisubstituted in the cyclic moiety by halogen and/or straight-chain or branched alkyl or alkoxy having 1 to 4 carbon atoms,

- Z^2 represents cycloalkyl or bicycloalkyl having in each case 3 to 10 carbon atoms and being in each case optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of halogen and/or C_1 - C_4 -alkyl,
- Z^3 represents unsubstituted C_2 - C_{20} -alkyl or C_1 - C_{20} -alkyl which is mono- or polysubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, iodine, C_1 - C_6 -alkylthio, C_1 - C_6 -alkylsulphanyl, C_1 - C_6 -alkylsulphonyl, C_1 - C_6 -alkoxy, C_1 - C_6 -alkylamino, di(C_1 - C_6 -alkyl)amino, C_1 - C_6 -haloalkylthio, C_1 - C_6 -haloalkylsulphanyl, C_1 - C_6 -haloalkylsulphonyl, C_1 - C_6 -haloalkoxy, C_1 - C_6 -haloalkylamino, halo-di(C_1 - C_6 -alkyl)amino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be mono- to tetrasubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, iodine, C_1 - C_4 -alkyl and C_1 - C_4 -haloalkyl,
- Z^4 represents C_2 - C_{20} -alkenyl or C_2 - C_{20} -alkynyl, each of which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, iodine, C_1 - C_6 -alkylthio, C_1 - C_6 -alkylsulphanyl, C_1 - C_6 -alkylsulphonyl, C_1 - C_6 -alkoxy, C_1 - C_6 -alkylamino, di(C_1 - C_6 -alkyl)amino, C_1 - C_6 -haloalkylthio, C_1 - C_6 -haloalkylsulphanyl, C_1 - C_6 -haloalkylsulphonyl, C_1 - C_6 -haloalkoxy, C_1 - C_6 -haloalkylamino, halo-di(C_1 - C_6 -alkyl)amino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be mono- to tetrasubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, iodine, C_1 - C_4 -alkyl and C_1 - C_4 -haloalkyl,
- R^8 and R^9 independently of one another represent C_1 - C_6 -alkyl, C_1 - C_6 -alkoxy, C_1 - C_3 -alkoxy- C_1 - C_3 -alkyl or C_1 - C_3 -alkylthio- C_1 - C_3 -alkyl,
- R^{10} represents C_1 - C_6 -alkyl, C_1 - C_6 -alkoxy, C_1 - C_3 -alkoxy- C_1 - C_3 -alkyl, C_1 - C_3 -alkylthio- C_1 - C_3 -alkyl, C_3 - C_6 -cycloalkyl, phenyl or benzyl,
- or
- M and Z together represent 1,1,3-trimethyl-1H-2,3-dihydroinden-4-yl, 1,3-dimethyl-1H-2,3-dihydroinden-4-yl, 1,1,3-trimethyl-1,3-dihydro-2-benzofuran-4-yl, 1,3-dimethyl-1,3-dihydro-2-benzofuran-4-yl, 1,1,3-trimethyl-1,3-dihydro-2-benzothien-4-yl or 1,3-dimethyl-1,3-dihydro-2-benzothien-4-yl.

3. Process for preparing the 2-halofuryl/thienyl-3-carboxamides of the formula (I) according to Claim 1, characterized in that

a) carboxylic acid derivatives of the formula (II)



in which

A and Hal are as defined in Claim 1 and

X¹ represents halogen or hydroxyl

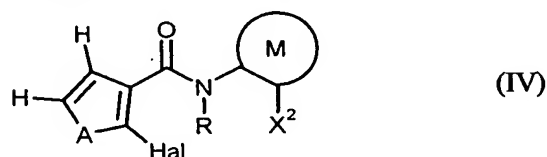
are reacted with aniline derivatives of the formula (III)



in which R, M and Z are as defined in Claim 1,

if appropriate in the presence of a catalyst, if appropriate in the presence of a condensing agent, if appropriate in the presence of an acid binder and if appropriate in the presence of a diluent, or

b) halocarboxamides of the formula (IV)

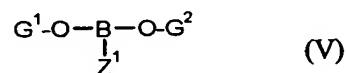


in which

A, Hal, R and M are as defined in Claim 1,

X² represents bromine, iodine or trifluoromethylsulphonate,

are reacted with boronic acid derivatives of the formula (V)



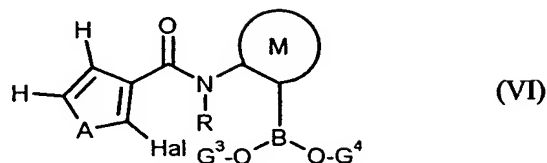
in which

Z¹ is as defined in Claim 1 and

G¹ and G² each represent hydrogen or together represent tetramethylethylene,

in the presence of a catalyst, if appropriate in the presence of an acid binder and if appropriate in the presence of a diluent, or

c) boronic acid derivatives of the formula (VI)



in which

A, Hal, R and M are as defined in Claim 1,

G³ and G⁴ each represent hydrogen or together represent tetramethylethylene

are reacted with phenyl derivatives of the formula (VII)



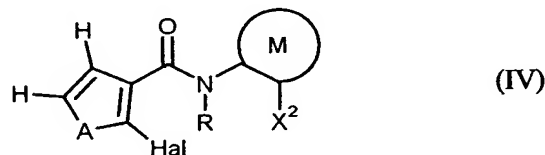
in which

Z¹ is as defined in Claim 1 and

X³ represents chlorine, bromine, iodine or trifluoromethylsulphonate,

if appropriate in the presence of a catalyst, if appropriate in the presence of an acid binder and if appropriate in the presence of a diluent, or

d) halocarboxamides of the formula (IV)



in which

A, Hal, R and M are as defined in Claim 1,

X² represents bromine, iodine or trifluoromethylsulphonate,

are reacted with phenyl derivatives of the formula (VII)



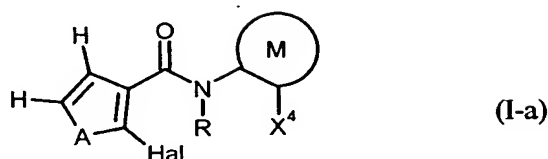
in which

Z¹ is as defined in Claim 1 and

X³ represents chlorine, bromine, iodine or trifluoromethylsulphonate,

in the presence of a palladium or nickel catalyst and in the presence of 4,4,4',4',5,5,5',5'-octamethyl-2,2'-bis-1,3,2-dioxaborolane, if appropriate in the presence of an acid binder and if appropriate in the presence of a diluent, or

e) 2-halofuryl/thienyl-3-carboxamides of the formula (I-a)



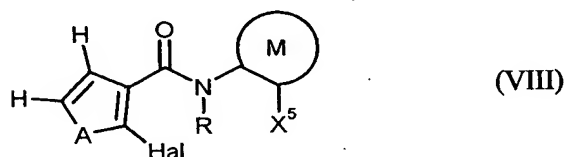
in which

A, Hal, R and M are as defined in Claim 1,

X^4 represents C_2 - C_{20} -alkenyl or C_2 - C_{20} -alkynyl which are in each case optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 alkyl,

are hydrogenated, if appropriate in the presence of a diluent and if appropriate in the presence of a catalyst, or

f) hydroxyalkylcarboxamides of the formula (VIII)



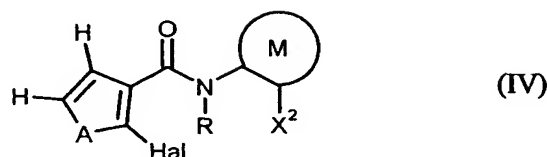
in which

A, Hal, R and M are as defined in Claim 1,

X^5 represents C_2 - C_{20} -hydroxyalkyl which is optionally additionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl,

are dehydrated, if appropriate in the presence of a diluent and if appropriate in the presence of an acid, or

g) halocarboxamides of the formula (IV)



in which

A, Hal, R and M are as defined in Claim 1,

X^2 represents bromine, iodine or trifluoromethylsulphonate,

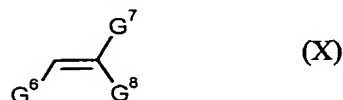
are reacted with an alkyne of the formula (IX)



in which

G^5 represents C_2 - C_{18} -alkyl which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl,

or an alkene of the formula (X)

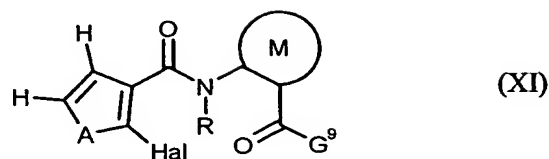


in which

G^6 , G^7 and G^8 independently of one another each represent hydrogen or alkyl which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl and the total number of carbon atoms of the open-chain molecular moiety (without substituents) does not exceed the number 20,

if appropriate in the presence of a diluent, if appropriate in the presence of an acid binder and if appropriate in the presence of one or more catalysts, or

h) ketones of the formula (XI)

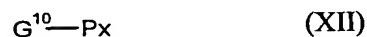


in which

A, Hal, R and M are as-defined in Claim 1,

G^9 represents hydrogen or C_1 - C_{18} -alkyl which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl,

are reacted with a phosphorus compound of the general formula (XII)



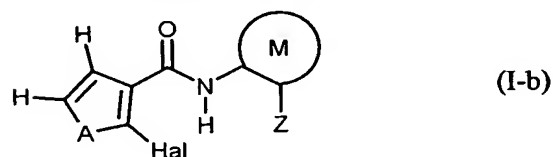
in which

G^{10} represents C_1 - C_{18} -alkyl which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl,

P_x represents a grouping $-P^+(C_6H_5)_3$, Cl^- , $-P^+(C_6H_5)_3$, Br^- , $-P^+(C_6H_5)_3$, I^- , $-P(=O)(OCH_3)_3$ or $-P(=O)(OC_2H_5)_3$,

if appropriate in the presence of a diluent, or

i) 2-halofuryl/thienyl-3-carboxamides of the formula (I-b)



in which

A, Hal, R, M and Z are as defined in Claim 1

are reacted with halides of the formula (XIII)



in which

- 5 R^a represents C_1 - C_8 -alkyl, C_1 - C_6 -alkylsulphinyl, C_1 - C_6 -alkylsulphonyl, C_1 - C_4 -alkoxy- C_1 - C_4 -alkyl, C_3 - C_8 -cycloalkyl; C_1 - C_6 -haloalkyl, C_1 - C_4 -haloalkylthio, C_1 - C_4 -haloalkylsulphinyl, C_1 - C_4 -haloalkylsulphonyl, halo- C_1 - C_4 -alkoxy- C_1 - C_4 -alkyl, C_3 - C_8 -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl- C_1 - C_3 -alkyl, (C_1 - C_3 -alkyl)carbonyl- C_1 - C_3 -alkyl, (C_1 - C_3 -alkoxy)carbonyl- C_1 - C_3 -alkyl; halo-(C_1 - C_3 -alkyl)carbonyl- C_1 - C_3 -alkyl, halo-(C_1 - C_3 -alkoxy)carbonyl- C_1 - C_3 -alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms; (C_1 - C_8 -alkyl)carbonyl, (C_1 - C_8 -alkoxy)carbonyl, (C_1 - C_4 -alkoxy- C_1 - C_4 -alkyl)carbonyl, (C_3 - C_8 -cycloalkyl)carbonyl; (C_1 - C_6 -haloalkyl)carbonyl, (C_1 - C_6 -haloalkoxy)carbonyl, (halo- C_1 - C_4 -alkoxy- C_1 - C_4 -alkyl)carbonyl, (C_3 - C_8 -halocycloalkyl)carbonyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; or $-C(=O)C(=O)R^1$, $-CONR^2R^3$ or $-CH_2NR^4R^5$,

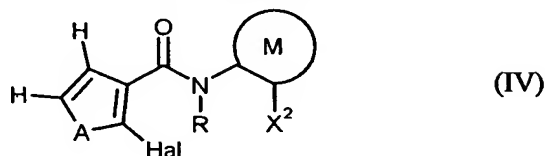
R^1 , R^2 , R^3 , R^4 and R^5 are as defined above,

X^6 represents chlorine, bromine or iodine,

20 in the presence of a base and in the presence of a diluent.

4. Compositions for controlling unwanted microorganisms, characterized in that they comprise at least one 2-halofuryl/thienyl-3-carboxamide of the formula (I) according to Claim 1, in addition to extenders and/or surfactants.
- 25 5. Use of 2-halofuryl/thienyl-3-carboxamides of the formula (I) according to Claim 1 for controlling unwanted microorganisms.
6. Method for controlling unwanted microorganisms, characterized in that 2-halofuryl/thienyl-3-carboxamides of the formula (I) according to Claim 1 are applied to the microorganisms and/or their habitat.
- 30 7. Process for preparing compositions for controlling unwanted microorganisms, characterized in that 2-halofuryl/thienyl-3-carboxamides of the formula (I) according to Claim 1 are mixed with extenders and/or surfactants.
- 35

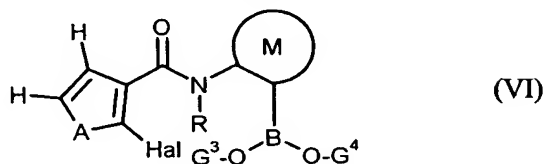
8. Halocarboxamides of the formula (IV)



in which

- 5 A, Hal, R and M are as defined in Claim 1,
 X^2 represents bromine or iodine.

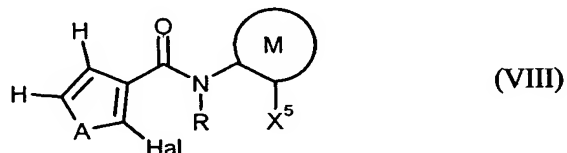
9. Boronic acid derivatives of the formula (VI)



10 in which

- A, Hal, R and M are as defined in Claim 1,
 G^3 and G^4 each represent hydrogen or together represent tetramethylethylene.

10. Hydroxyalkylcarboxamides of the formula (VIII)

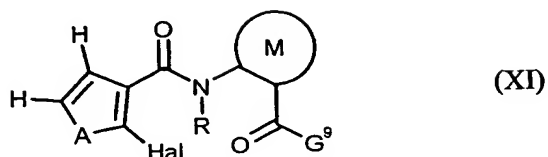


15

in which

- A, Hal, R and M are as defined in Claim 1,
 X^5 represents C_2 - C_{20} -hydroxyalkyl which is optionally additionally mono- or polysubstituted by identical or different substituents from the group consisting of
 20 halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and/or C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl.

25 11. Ketones of the formula (XI)



in which

A, Hal, R and M are as defined in Claim 1,

G^9 represents hydrogen or represents C_1 - C_{18} -alkyl which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen, alkylthio, alkylsulphinyl, alkylsulphonyl, alkoxy, alkylamino, dialkylamino, haloalkylthio, haloalkylsulphinyl, haloalkylsulphonyl, haloalkoxy, haloalkylamino, halodialkylamino, $-SiR^8R^9R^{10}$ and C_3 - C_6 -cycloalkyl, where the cycloalkyl moiety for its part may optionally be substituted by halogen and/or C_1 - C_4 -alkyl.